

CT urography is being routinely used for evaluation of the kidneys and urinary tract. The recent advent of multi-slice CT allows for much quicker acquisition of images compared to single slice CT, and usually involves multi-phase scanning over the pelvis. The radiation dose to patients during CT urography was measured using TLDs, and compared to dose estimates determined from phantom measurements. CT doses were also compared to patient dose measurements from IVP procedures.

Patient skin doses were determined by placing a TLD strip (6 TLD chips) on the abdomen of eight patients having CT urography, and eight different patients having an IVP exam. The CT protocol includes three volumetric acquisitions of the abdomen and pelvis. The resulting TLD dose was compared with a calculation of the CTDI determined from pencil chamber measurements at 1 cm depth on a cylindrical lucite dosimetry phantom (32 cm diameter). The IVP protocol included full nephrotomography and oblique projections.

The mean patient skin doses for CT urography determined from TLD and phantom measurements were  $56.3 \pm 11.5$  (std. dev.) mGy and  $54.6 \pm 4.1$  mGy respectively. The mean patient skin dose for IVP exams was  $51.9 \pm 27$  mGy. Mean effective doses were  $16.7 \pm 1.2$  mGy and  $7.8 \pm 4.1$  mGy for CT urography and IVP respectively.

In conclusion, the standard protocol used for CT urography lead to a higher mean effective dose suggesting approximately twice the radiation risk when compared to that of a limited number of IVP exams.